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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,984	01/19/2006	Keigo Higaki	270933US0PCT	1862

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EXAMINER	
KRYLOVA, IRINA	

ART UNIT	PAPER NUMBER
4131	

NOTIFICATION DATE	DELIVERY MODE
10/01/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/534,984	HIGAKI ET AL.	
	Examiner	Art Unit	
	IRINA KRYLOVA	4131	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 September 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :05/16/2005; 09/23/2005;9/11/2008.

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because the first sentence is not clear to what is the relationship between the thermoplastic composition and a molded article. Correction is required. See MPEP § 608.01(b).

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required. Claims 1 and 2 recite "…content of bonded vinyl cyanide compounds in an acetone-soluble fraction…" Specification does not contain a description of how this content was obtained.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,254,622 by **Nanasawa et al.**

5. **Nanasawa et al** recites a resin composition comprising

(1) a graft copolymer prepared by graft-copolymerizing a **vinyl cyanide** compound (A) and an **aromatic vinyl** compound (S) onto a **rubbery** polymer (B);

(2) a copolymer prepared by copolymerizing a **vinyl cyanide** compound (A) and an

aromatic vinyl compound (S), whereby the resin is characterized by:

- the **content of rubber polymer in the resin composition is 5-50%;**

- the **content of vinyl cyanide** compound in acetone-soluble resin component (P) is 50%-65% by mole (**33.8 to 48.6% by weight**);

– the content of vinyl cyanide of (1) is substantially equal to the average vinyl cyanide compound unit content of (2) (col. 2, lines 65-69; col. 3, lines 1-14; col. 4, lines 14-15). The rubbery polymer used comprises **acrylic rubbers** (col. 7, lines 10-17).

6. The grafted rubbery polymer is produced by mixing 40 parts of rubbery polymer with a monomer mixture consisting of 24 parts of acrylonitrile and 36 parts of styrene (col. 10, lines 32-40). Though the specific example is given for a butadiene rubber, acrylic rubber appear to be similarly used as well (col. 7,lines 10-17). The copolymer of vinyl cyanide and styrene (SAN) is produced by mixing 37.5 parts of acrylonitrile with 37.5 parts of styrene (col. 10, lines 62-66). Then 42.5% of graft copolymer is mixed with 57.5% of SAN to give rubber content in resin 17.4%; acrylonitrile content in acetone-soluble fraction of (2) is 56 % mole (Table 2-3, Example 5) or 60% or grafted copolymer is mixed with 40% of SAN to give rubber content 24.5%; acrylonitrile content in SAN is 55% mole (Table 2-3, Example 7).

7. The resin composition is used for making molded articles and in coating compositions (col. 1, lines 11-12, 25).

8. Nanasawa et al does not recite coefficient of linear expansion or flexural modulus of the described composition. However, since 1) the compositions of the instant application and Nanasawa et al are substantially identical and 2) both rubber content

and content of vinyl cyanide in the resin composition are crucial for specific stiffness and elasticity properties, therefore, coefficient of linear expansion and flexural modulus become inherent characteristics of the composition. "Products of identical chemical composition can not have mutually exclusive properties" (See MPEP 2112.01).

9. Claims 2, 7-10 are rejected under 35 U.S.C. 102(b) as being anticipated by US 4,433,102 by **Brandstetter et al.**

Brandstetter et al recites a thermoplastic **molding** material comprising:

1) 50-90% by weight of a copolymer of styrene and acrylonitrile (SAN);

2) 10-50% by weight of a graft copolymer comprising 40-80% of acrylate polymer onto which 20-60% by weight of a mixture of styrene and acrylonitrile was grafted (Abstract).

Examples 1 and 2 specify the use of 55% (1) SAN and 45% of grafted acrylate rubber.

In these examples, the content of rubber in the resin composition appear to be 1—36% (calculated using the range 40-80% of acrylate polymer used for grafting).

The copolymer (1) SAN contained 35% acrylonitrile (col. 6, lines 4-7).

The composition was used for producing molding articles by extrusion or injection molding (col. 5, lines 20-30).

10. **Brandstetter et al** fails to specify coefficient of linear expansion or flexural modulus of the composition. However, since 1) the compositions of the instant application and **Brandstetter et al** are substantially identical and 2) both rubber content and content of vinyl cyanide are crucial for specific stiffness and elasticity properties, therefore, coefficient of linear expansion and flexural modulus become inherent

characteristics of the composition. "Products of identical chemical composition can not have mutually exclusive properties" (See MPEP 2112.01).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

13. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,229,457 by **Kamoshita et al.**

14. **Kamoshita et al**. discloses a resin composition comprising:

1) From 5 to 100% by weight of component (A) comprising a graft copolymer obtained by polymerizing **30-90** parts by weight of a monomer mixture consisting essentially of 45-75% wt. of vinyl cyanide and 25-55% by wt. of aromatic vinyl compound in the presence of from **10-70** parts wt of an **acrylic rubber**;

2) from 0-80% by weight of component (B) comprising a graft copolymer obtained by polymerizing **30-90** parts by weight of a monomer mixture consisting essentially of 45-75% wt. of vinyl cyanide and from 25-55% wt of aromatic vinyl compound, in the presence of a **10-70 parts** wt of a **diene rubber**;

3) from 0-85% by weight of component (c) comprising a copolymer obtained by polymerizing a monomer mixture consisting essentially of 45-75% of vinyl cyanide and 25-55% of an aromatic vinyl compound (Col. 2, lines 60-65; col. 3, lines 1-17).

The total rubber content in the resin composition comprises 10-20% wt (col. 11, lines 7-8).

Since 1) the ranges of the used components in Kamoshita et al. composition are substantially identical to the ranges provided in claims of the instant invention;

2) the content of rubber in the resin composition is within the overlapping ranges,

3) it is known in the art that increase of rubber content in a composition would lead to decrease in flexural modulus, it would be obvious to one skilled in the art at the time the invention was made to try to make variations within the ranges given by Kamoshita et al to obtain predictable results (flexural modulus).

15. Claims 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,254,622 by **Nanasawa et al.** as applied to claim 1 above, and further in view of EP 1,245,597 by **Nakai et al.**

Nakai et al recites a resin composition comprising a graft copolymer prepared by emulsion polymerization of an acrylic rubber polymer with a aromatic alkenyl and vinyl

cyanide monomers, mixed with ABS and/or AS (acrylonitrile-styrene copolymer) (Abstract, [0033], [0044], [0064]). The composition is used for making molding articles by injection molding, extrusion molding, blow molding, compression molding, calendaring, and inflation molding ([0079]). The composition is used for making molding parts for vehicles ([0080).

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to IRINA KRYLOVA whose telephone number is (571)270-7349. The examiner can normally be reached on Monday-Friday 6:30am-4pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Sample can be reached on (571)272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David R. Sample/
Supervisory Patent Examiner, Art Unit 4131

/I. K./
Examiner, Art Unit 4131